

What is claimed is:

1. A method of providing humidity control to air for an interior space, the method comprising the steps of:
 - providing a first refrigerant circuit having a first compressor, a first condenser and a first evaporator;
 - providing a second refrigerant circuit having a second compressor, a second condenser and a second evaporator;
 - providing a hot gas re-heat circuit connected to the first refrigerant circuit, the hot gas re-heat circuit having a re-heat coil positioned adjacent to the first evaporator, and the hot gas re-heat circuit being configured, when enabled, to bypass the first condenser and to permit refrigerant to flow from the first compressor through the re-heat coil to the first evaporator;
 - enabling the first refrigerant circuit and the second refrigerant circuit in response to a demand for humidity control and a demand for cooling, wherein the demand for cooling is one of a demand for stage one cooling and a demand for stage two cooling; and
 - enabling the hot gas re-heat circuit in response to a demand for humidity control and a demand for stage one cooling.
2. The method of claim 1 further comprising the step of disabling the hot gas re-heat circuit in response to a demand for humidity control and a demand for stage two cooling.
3. The method of claim 1 further comprising the steps of:
 - enabling the first refrigerant circuit in response to a demand for only humidity control; and
 - enabling the hot gas re-heat circuit in response to a demand for only humidity control.
4. The method of claim 1 further comprising the step of disabling the first refrigerant circuit, the second refrigerant circuit and the hot gas re-heat circuit in response to a demand for humidity control and a demand for heating.

5. The method of claim 1 further comprising the steps of:
 - providing a blower arrangement configured and disposed to receive air passing over the first evaporator, the second evaporator and the reheat coil and to provide the received air to a supply duct for distribution to an interior space; and
 - enabling the blower arrangement in response to one of a demand for heating, a demand for stage one cooling, a demand for stage two cooling and a demand for humidity control.
6. The method of claim 1 wherein a demand for stage two cooling is greater than a demand for stage one cooling.
7. The method of claim 1 further comprising the step of receiving a humidity control signal, the humidity control signal being indicative of a demand for humidity control.
8. The method of claim 1 further comprising the step of receiving a cooling mode signal, the cooling mode signal being indicative of a demand for cooling.
9. The method of claim 9 wherein the step of receiving a cooling mode signal includes receiving a stage one cooling signal, the stage one cooling signal being indicative of a demand for stage one cooling.
10. A heating, ventilation and air conditioning (HVAC) system for an interior space, the HVAC system comprising:
 - a first refrigerant circuit having a first compressor, a first condenser and a first evaporator;
 - a second refrigerant circuit having a second compressor, a second condenser and a second evaporator;
 - a hot gas re-heat circuit connected to the first refrigerant circuit, the hot gas re-heat circuit having a re-heat coil positioned adjacent to the first evaporator, and the hot gas re-heat circuit being configured, when enabled, to bypass the first condenser and to permit refrigerant to flow from the first compressor through the reheat coil to the first evaporator; and

a control system to control operation of the first refrigerant circuit, the second refrigerant circuit and the hot gas re-heat circuit, the control system enabling the first refrigerant circuit, the second refrigerant circuit and the hot gas re-heat circuit in response to demands for humidity control and stage one cooling, and the control system enabling the first refrigerant circuit and the second refrigerant circuit and disabling the hot gas re-heat circuit in response to demands for humidity control and stage two cooling.

11. The HVAC system of claim 10 wherein the control system enables the first refrigerant circuit and the hot gas re-heat circuit in response to a demand for only humidity control.
12. The HVAC system of claim 11 wherein the control system disables the first refrigerant circuit, the second refrigerant circuit and the hot gas re-heat circuit in response to demands for humidity control and heating.
13. The HVAC system of claim 10 further comprising a blower arrangement configured and disposed to receive air passing over the first evaporator, the second evaporator and the reheat coil and to provide the received air to a supply duct for distribution to an interior space.
14. The HVAC system of claim 13 wherein the control system enables the blower arrangement in response to one of a demand for heating, a demand for stage one cooling, a demand for stage two cooling and a demand for humidity control.
15. The HVAC system of claim 10 wherein a demand for stage two cooling is greater than a demand for stage one cooling.
16. The HVAC system of claim 10 wherein:
 - the hot gas re-heat circuit further comprises a first valve arrangement positioned in the first refrigerant circuit between the first compressor and first condenser and a second valve arrangement positioned in the first refrigerant circuit between the first condenser and the first evaporator; and
 - the control system enables the hot gas re-heat circuit by positioning the first valve arrangement to permit refrigerant to flow from the first compressor into the re-heat coil and by positioning the second valve

arrangement to permit refrigerant to flow from the re-heat coil to the first evaporator.

17. The HVAC system of claim 10 wherein the control system comprises a control panel and at least one sensor to measure an operating parameter of the first refrigerant circuit or the second refrigerant circuit.